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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 34497-2023**

Replacing GB/T 34497-2017

**Copper and copper alloy strip and foil for terminal connectors**

端子连接器用铜及铜合金带箔材

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## Foreword

This document is the official English translation of GB/T 34497-2023, issued by the State Administration for Market Regulation and the National Standardization Administration on 27 November 2023 and in force since 1 June 2024. SAC/TC 243 is in charge of the English translation; in case of doubt about its contents, the Chinese original is authoritative.

The document was drafted according to the rules of GB/T 1.1-2020 and replaces GB/T 34497-2017 Copper and copper alloy strip and foil for terminals and connectors in whole. Besides structural and editorial changes, the technical deviations from the 2017 edition are: some designations and codes are modified, TSn0.1, TBe2.0, TSi1-0.25 and QSn10-0.3 becoming TSn0.12, TBe2, TNi1.3-0.25 and QSn10-0.2, and the codes C17000, C17200, T18865 and C75210 becoming T17700, T17720, T18864 and C75200; the width requirements of HSn77-1, HSn75-1, HSn88-1, HSn88-2 and QSn10-0.2 are widened from 10 mm to 410 mm to 10 mm to 620 mm; the supply temper of TZr0.1 is changed from the cold worked state to the solution heat treated plus cold worked plus precipitation heat treated state; the chemical composition table is deleted; the designation, mechanical properties, 90-degree bending test conditions, electrical properties and bending stress relaxation performance of TCr1-0.15, HSn88-0.7, QSn2-0.2 and QSn2-0.1-0.03 are added; the requirements and test methods for strip shape are deleted; requirements and test methods for the flatness of strip and foil are added; the mechanical property requirements are partially modified for a list of designations; 90-degree bending test conditions and stress relaxation performances are added for further designations; the mechanical, electrical and bending stress relaxation test methods are modified; and the sampling requirements for mechanical and process properties are modified.

The document was proposed by the China Nonferrous Metals Industry Association and prepared by SAC/TC 243, the National Technical Committee 243 on Nonferrous Metals. It was issued in 2017 as the first edition, and this is the first revised edition.

## 1 Scope

China's national standard for the copper and copper alloy strip and foil from which electrical terminals and connectors are stamped. A connector contact is asked to do three things at once: conduct, spring, and keep on springing for years at the temperature under a bonnet or inside a server. Those requirements pull against each other - the alloys with the best conductivity are the softest, and the hardest tempers are the ones that crack when the contact is formed - so the material is bought against a narrow window of properties rather than a single number. This document defines that window. It fixes the designations, alloy codes, tempers and dimensions of the strip and foil, from plain coppers such as T2 and TP2 through the tin, iron, nickel, magnesium, chromium and beryllium alloys to the brasses and the tin bronzes, in thicknesses from 0.10 mm to 3.00 mm and widths from 10 mm to 620 mm. It then sets the mechanical properties, the 90-degree bending conditions, the electrical properties and the bending stress relaxation performance, with the matching test methods, inspection rules, marking, packaging, transport, storage, accompanying documents and order contents. It replaces the 2017 edition, whose designations, codes and several property tables it revises. Its readers are the copper strip mills, the terminal stampers and the purchasing and quality departments that write the order.

This document specifies the classification, marking, technical requirements, test methods, inspection rules, marking, packaging, transportation, storage, accompanying documents and order contents of the copper and copper alloy strip and foil for terminal connectors.

It applies to the copper and copper alloy strip and foil for terminal connectors, referred to hereinafter as strip and foil.

## 2 Normative references

The contents of the following documents constitute essential clauses of this document through normative reference in the text. For dated references only the edition cited applies; for undated references the latest edition applies, including any amendments.

The list covers the mechanical and physical test methods used on the material - bend testing (GB/T 232), resistivity (GB/T 351), Vickers hardness (GB/T 4340.1), tensile testing at room temperature (GB/T 34505-2017), bending stress relaxation (GB/T 39152) and eddy-current conductivity (GB/T 32791) - together with chemical analysis (GB/T 5121 all parts, YS/T 482, YS/T 483), sampling (YS/T 668), the designation and chemical composition of wrought copper and copper alloys (GB/T 5231), the measurement of dimensions and shapes of sheets and strips (GB/T 26303.3), rounding rules (GB/T 8170)

and packing and certification of wrought heavy non-ferrous metal products (GB/T 8888).

### 3 Terms and definitions

No terms and definitions are listed in this document.

### 4 Classification and sign

4.1 Product classification. The designation, code, temper and specification of the strip and foil have to comply with Table 1, which lists each designation against its alloy code, the tempers in which it is supplied, and the thickness and width ranges. The table runs from the plain coppers T2 (T11050) and TP2 (C12200) through TSn0.12 (C14415), TZr0.1 (C15100), the beryllium coppers TBe1.7 (T17700) and TBe2 (T17200), TCr1-0.15 (C18150), TMg0.5 (T18664), TNi1.3-0.25 (C19010), the tin coppers of the C190xx series and the iron coppers TFe0.1 (C19210), TFe2.5 (C19400) and TFe0.75 (C19700), and continues with the brasses and tin bronzes. The tempers range from the quarter hard, half hard, hard, extra hard and spring cold-worked states to mill hardened plus cold worked states and solution heat treated plus cold worked plus precipitation heat treated states. Thickness is 0.10 mm to 3.00 mm and width 10 mm to 620 mm for the designations listed on the first pages of the table. The individual values are not reproduced here.

The clause continues with the marking of the product, which is not reproduced here.

### 7 Inspection rules

The clause sets out the inspection and acceptance, the grouping into lots, the inspection items, the sampling and the judgment of the results. On judgment, inspection values are rounded off in accordance with GB/T 8170 and compared as rounded values; a lot whose chemical composition fails is unqualified; a coil whose dimensions, dimensional tolerances or surface quality fail is unqualified; and where a mechanical property, bending, electrical property or bending stress relaxation result fails, double additional samples are taken from the lot and retested, the lot being accepted only if all repeated results are qualified, otherwise rejected or inspected coil by coil.

### 8 Marking, packaging, transportation, storage and accompanying documents

8.1 Marking, packaging, transportation and storage of the strip and foil comply with GB/T 8888.

8.2 Accompanying documents. Each lot is accompanied by documents giving the supplier information, the product information, the reference to this document and the pre-delivery or package date, and should also include a quality certificate, a product certificate of approval

listing the inspection items and results, the quantity or number of the lot, the date of inspection and the inspector's signature or seal, the inspection reports from process quality control and on the finished product, and the handling, use and storage instructions.

## 9 Order content

According to the buyer's need, the order list may state the product name, the designation, the temper, the dimensions and tolerances - ordinary level being supplied where nothing is specified - the weight, whether a tensile or hardness test is required, whether a bending test is required, and the electrical properties, among the other items listed in the clause.